2003-04 SQUIRREL HUNTING COOPERATOR SURVEY REPORT

KENTUCKY DEPARTMENT OF FISH AND WILDLIFE RESOURCES

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Thank you to all the hunter cooperators who sent in hunting logs for the Fall Squirrel Hunter Cooperator Survey. Your efforts are appreciated, and we encourage you to continue sending in your hunting logs. Enlist your hunting buddies to do the same! The following report will cover the results of last season's (2003-04) Fall Squirrel Hunter Cooperator Survey and the 2003 Mast Survey. Last season's harvest and hunting effort totals will be included as well as the current population trends. Of course, I'll provide an outlook for the upcoming season!

I. 2002-03 Fall Squirrel Hunter Cooperator Survey

The squirrel survey was developed in 1995 as a voluntary initiative. Hunters are asked to record data including date of hunt, county hunted, hours hunted, number of hunters, number of dogs, number of fox squirrels (seen, killed, and wounded), and the number of gray squirrels (seen, killed, and wounded) on a diary-type hunting log. Logs are available through the hunting guide, from the KDFWR website (http://fw.ky.gov/), KDFWR wildlife biologists, area managers, and conservation officers. Hunters simply keep the log up-to-date as the hunting season progresses, and mail it to the Game Farm when they're finished hunting for the season or the season closes. Data collected from the survey give the KDFWR information that can be used to monitor squirrel population trends in Kentucky and better serve the hunters of the state. Participating hunter cooperators are mailed a new hunting log, their log from last year, the results of the survey, and a small gift.

Summary of Last Year's Hunter Logs

Participation in the survey increased by 20% from the 2002-03 season. Hunting logs were received from 114 hunters who averaged 11.6 hunting trips during the season. Fourteen percent of hunts included the use of dogs. Hunts lasted an average of 2.7 hours. Data were provided from 1,321 hunts and occurred in 83 counties across the state. The central region had the largest number of hunts (599), whereas the eastern and western regions had 354 and 368 hunts, respectively. The number of hunts per county was well distributed except for a small section in the central portion of the eastern region (Figure 1). Total squirrels seen by hunters averaged 6.0 per hunt or 2.2 per hour. Observations and harvest showed some variability throughout the season, but the rate of harvest of observed squirrels was stable (Figure 2). Hunters averaged seeing 5.0 gray squirrels per hunt (1.9/hr.) and 0.9 fox squirrels per hunt (0.3/hr.) statewide. Total squirrel harvest averaged 2.8 per hunt (1.0/hr.). Gray squirrel harvest averaged 2.3 per hunt (0.9/hr.), and fox squirrel harvest averaged 0.5 per hunt (0.2/hr.). Fewer fox squirrels were seen and harvested per hour than the previous three survey years (Table 1). The maximum squirrels (by species) observed during a single hunt was 50 for gray squirrels (2 hunters) and 23 for fox squirrels (2 hunters). The last four survey years yielded a roughly 50% hunting mortality rate for an observed squirrel and a consistent level of hunter effort (11 hunts/cooperator)(Table 2).

Figure 2. Squirrels seen and harvested per hour of hunting from the Squirrel Cooperator Survey, 2003-04.

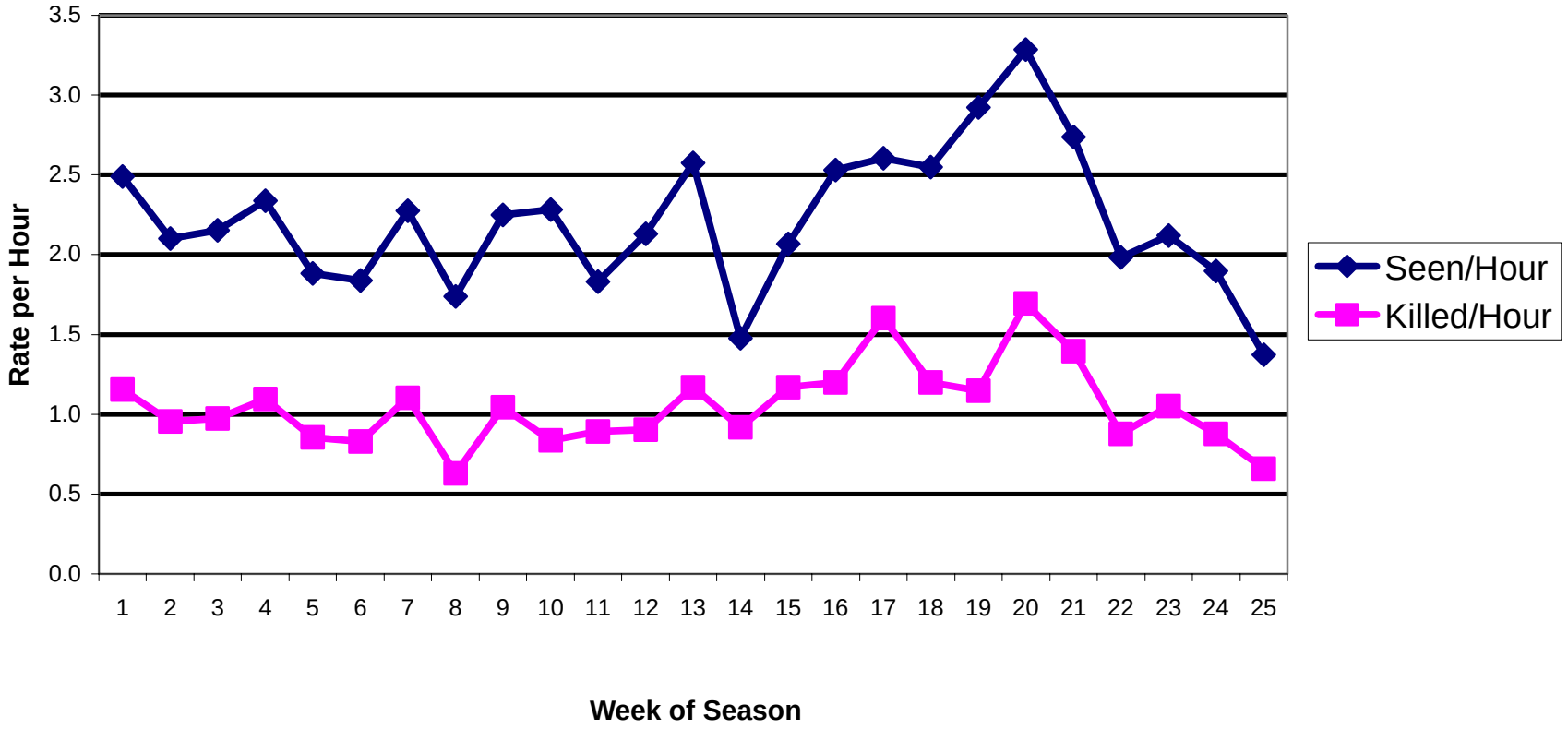


Table 1. Observation and harvest rates of fox and gray squirrels from Fall Squirrel Hunter Cooperator Surveys, 2000-2004.

	Fox Squirrels				Gray Squirrels			
	Seen		Harvested		Seen		Harvested	
Season	**Hour**	**Hunt**	**Hour**	**Hunt**	**Hour**	**Hunt**	**Hour**	**Hunt**
2000-01	0.4	1.3	0.3	0.7	1.4	3.9	0.9	1.8
2001-02	0.5	1.4	0.3	0.8	1.7	4.7	1.0	2.0
2002-03	0.5	1.2	0.3	0.7	2.3	6.2	1.4	3.1
2003-04	0.3	0.9	0.2	0.5	1.9	5.0	0.9	2.3

Table 2. Summary of Fall Squirrel Hunter Cooperator Survey data, 2000-2004.

STATISTICS	2000-01	2001-02	2002-03	2003-04
Total cooperators	101	120	95	114
Total hunts	1186	1425	1049	1321
Total counties	80	91	83	83
Average hunts/cooperator	11.7	11.9	11.0	11.6
Total hours	3389	3916	2854	3518
Hunts using dogs (%)	16.7	17.5	13.0	14.2
Total fox squirrels seen	1520	1956	1297	1173
Total fox squirrels killed	877	1098	775	632
Total fox squirrels wounded	48	50	51	36
Total gray squirrels seen	4648	6690	6463	6701
Total gray squirrels killed	2095	2802	3203	3053
Total gray squirrels wounded	182	235	254	273
Harvest of squirrels seen (%)	48.2	45.1	51.3	46.8
Squirrels wounded (%)	3.7	3.3	3.9	3.9
Hunting mortality (%)	51.9	48.4	55.2	50.7

Hunter Effort

Hunting effort was greater towards the beginning of squirrel season. Forty-eight percent of the hunts took place in August and September (weeks 1-8). The first seven weeks comprised only 27% of the squirrel season, but accounted for 43% of the total squirrel harvest (Figure 3). The hunter effort index declined steadily throughout the season, and squirrel hunting trips were rare in mid-November and late January (Figure 4). However, this year's survey did show small increases in hunting over the Thanksgiving and Christmas/New Year holidays. Squirrel hunting is one of a few seasons open in August and September, and later season opening dates for deer, waterfowl, rabbit, grouse, and quail may account for the greater hunting effort taking place towards the beginning of squirrel season. Only 11% of the total hunts took place in November, and the hunting rate was likely a direct result of the onset of deer gun season. Accordingly 64.8% of the squirrels harvested in the 2003-04 Fall Squirrel Hunter Cooperator Survey were taken before modern gun deer season (November 8, 2003, Week 14).

This was the seventh year of the January 31st closing date for squirrel season. The 2003-04 season showed an increase in late season hunting. In 2002-03, January hunts comprised 4.6% of the hunts and 4.1% of the harvest. However, this year, the month totaled 8.8% of the hunts and 7.4% of the harvest. The 2004-05 season will extend through February, so we will be keeping a close eye on hunting effort and success through January and February.

Figure 3. Proportion of hunts and harvest by month from the Fall Squirrel Hunter Cooperator Survey, 2003-04.

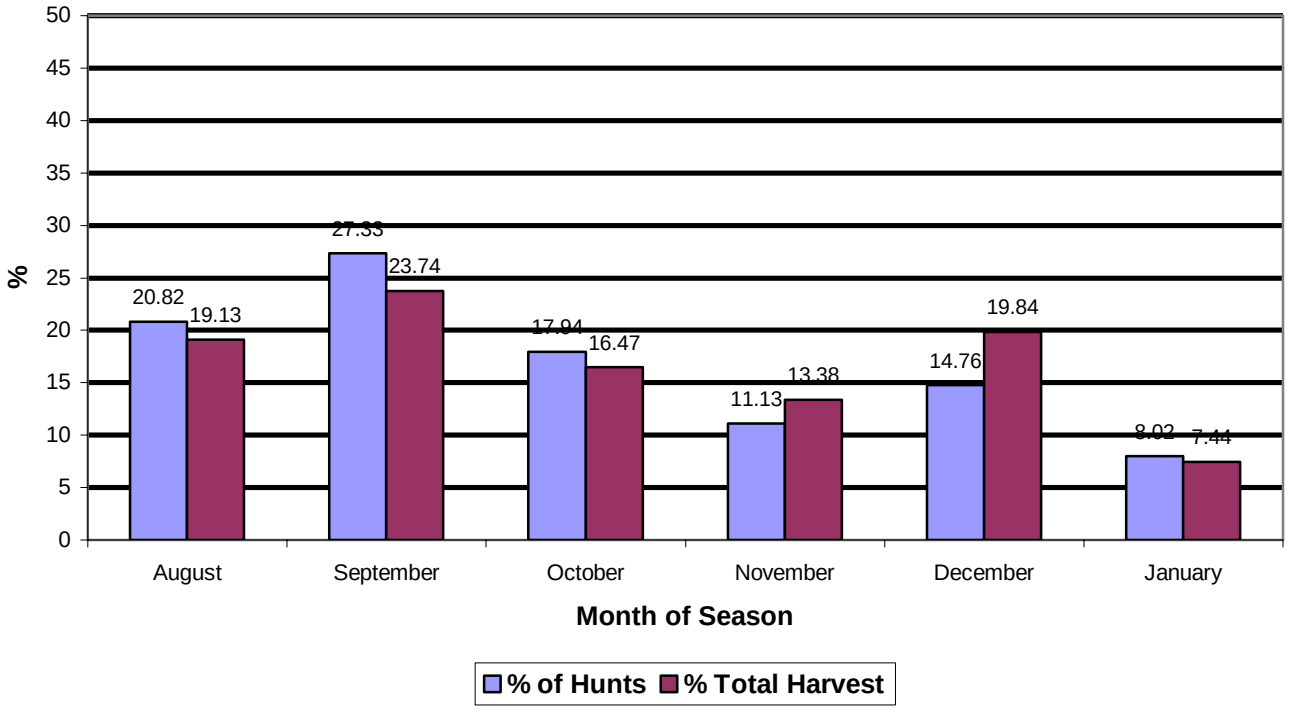
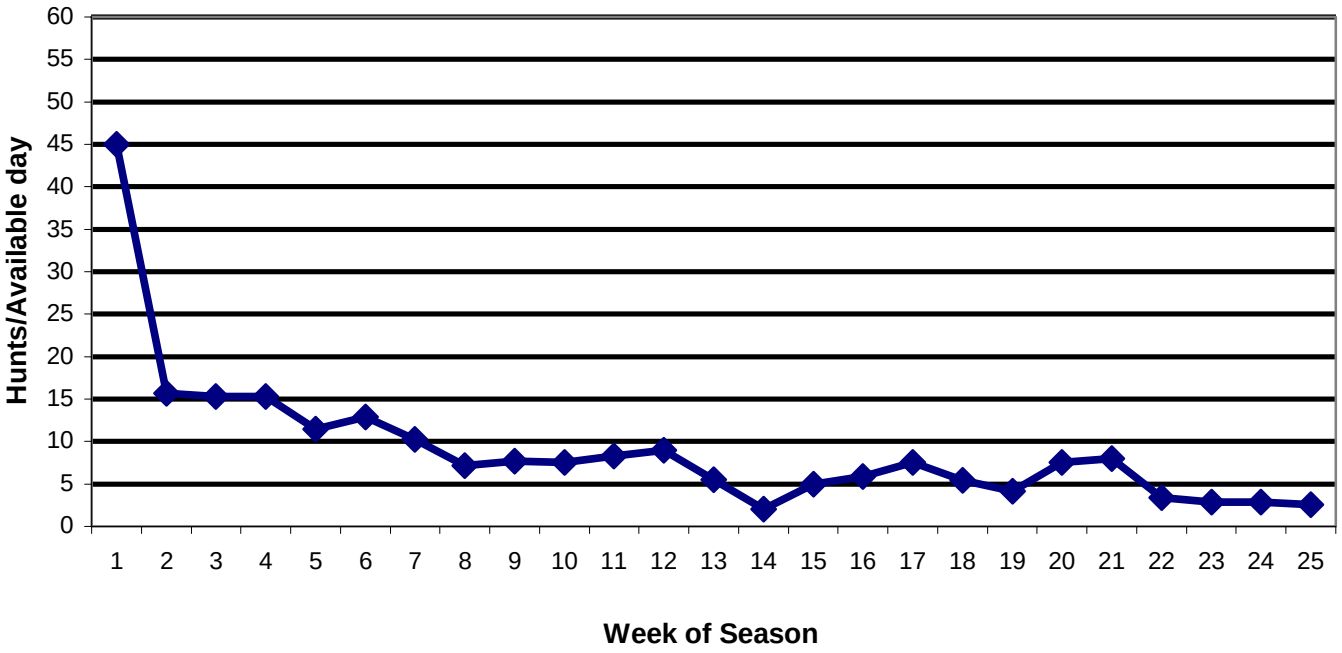


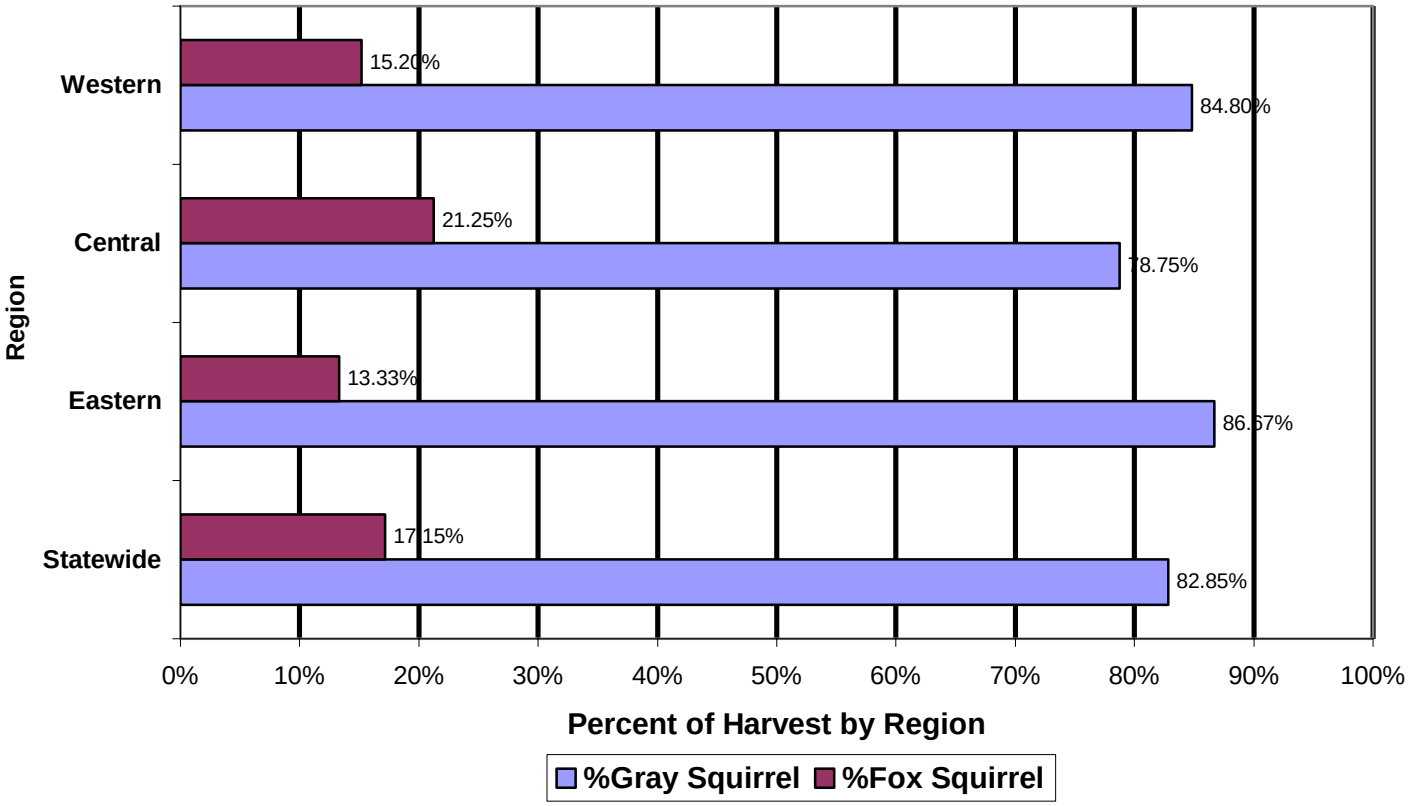
Figure 4. Hunts/availabe day index from the Fall Squirrel Hunter Cooperator Survey, 2003-04.



Harvest

Hunters harvested 46.8% of squirrels seen and wounded 3.9%. Assuming wounded squirrels did not survive, the hunting mortality rate was 50.7 % of squirrels seen in 2003-04. Gray squirrels were harvested nearly 5 to 1 compared to fox squirrels statewide. Regional harvest trends mimic the statewide results (Figure 5). The rate suggests Kentucky squirrel hunters prefer hunting in more extensive forests and woodlands than small woodlots and fencerow-type habitats. It also implies that gray squirrels are more abundant than fox squirrels. However, fox squirrels were harvested at a higher rate when observed. Gray squirrels were harvested 45% of the time observed, and fox squirrels were harvested 54% of the time observed. Fox squirrels may be more easily harvested because of their larger size, more solitary behavior, level of wariness, or use of open habitats.

Figure 5. Species composition of the harvest from Fall Squirrel Hunter Cooperator Survey, 2003-04.



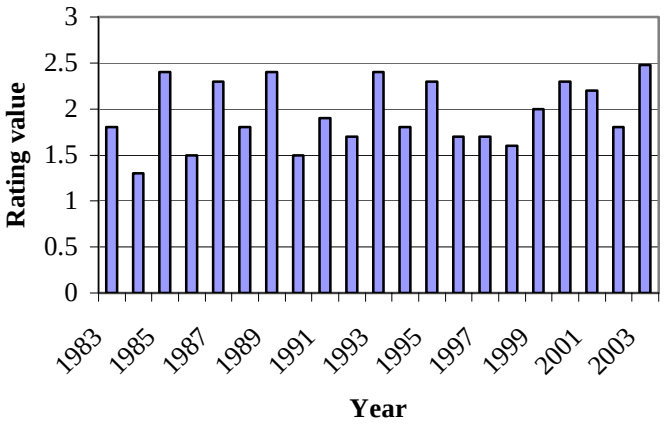
II. 2003 Mast Survey Results

A statewide mast production survey of Kentucky's most important producers of wildlife foods was initiated in 1953 and has been conducted annually thereafter. A close relationship has been found between a given year's mast production and the following year's squirrel population level statewide. The 2003 mast survey inventoried three tree groups (hickories, red oaks, and white oaks) and three individual species (black walnut, American beech, and flowering dogwood) that previous studies have revealed to be of primary importance in Kentucky. Production was rated by visual estimates made primarily during September and October and recorded on standardized forms.

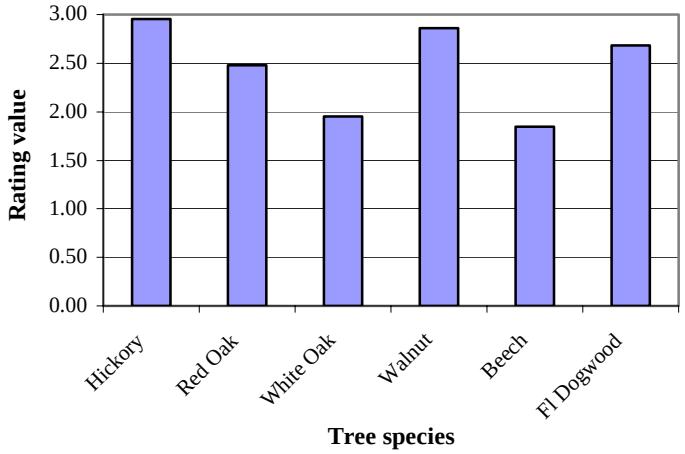
Summary of the Survey

On a statewide basis, this year's mast production was rated at 2.5, so the winter food source was considered moderate to heavy statewide. Increases in production were recorded for all species compared to 2002. The soft mast production of dogwoods for the state was rated at 2.7, a moderate to heavy rating, but hickory was the best mast producer compared to the other trees monitored. The moderate to heavy mast crop last year should contribute to increasing forest wildlife populations, because high food supplies could lead to lower rates of winter mortality and higher reproductive potential in 2003.

Statewide overall mean mast production ratings, 1983-2003.

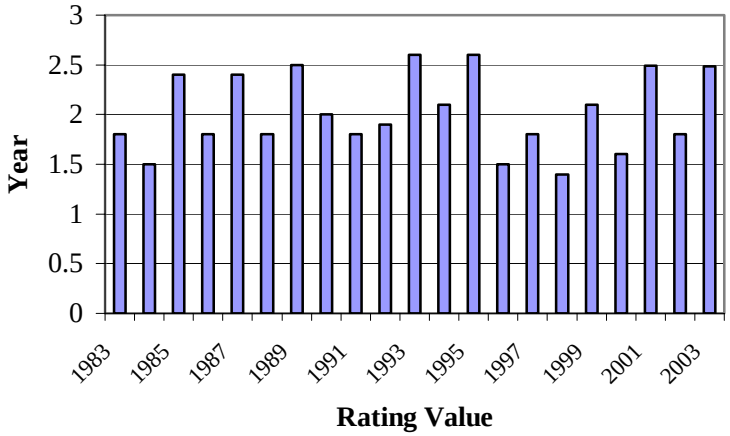


Statewide mast production rating by tree species for 2003.

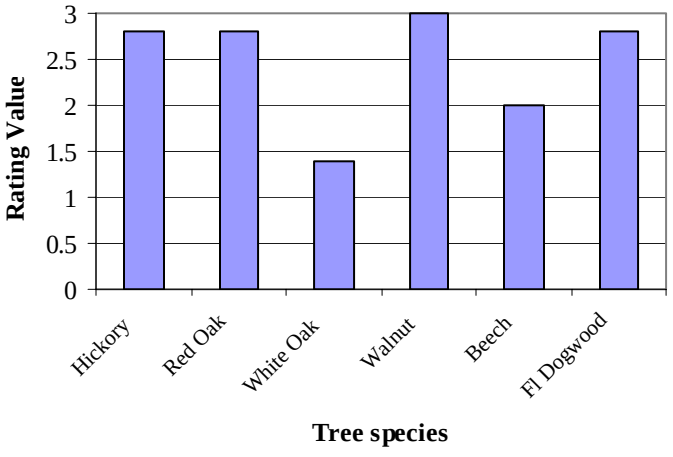


Western Region: The overall 2002 mast production for the western Kentucky region was rated as moderate to heavy (2.5). This represents a decrease of 39% (0.7) from last year (below left). Production was high for the hickory, red oaks, walnut, and flowering dogwood. White oak production was light and beech was moderate (below right). The increase in overall production could cause forest wildlife populations to increase in the western region.

Western Kentucky overall mean mast production ratings, 1983-2003.

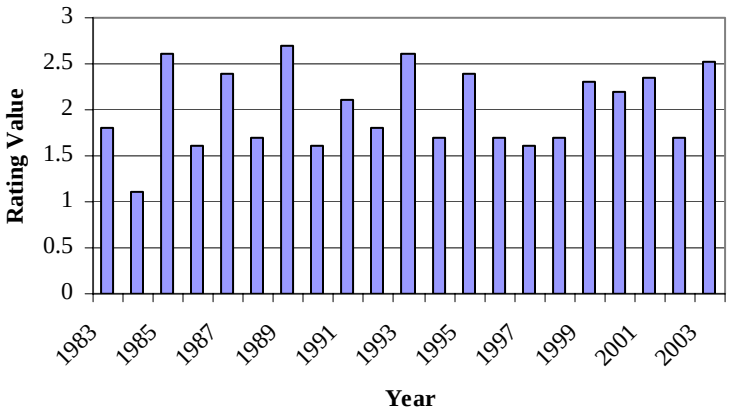


Western Kentucky mast ratings by tree species for 2003.

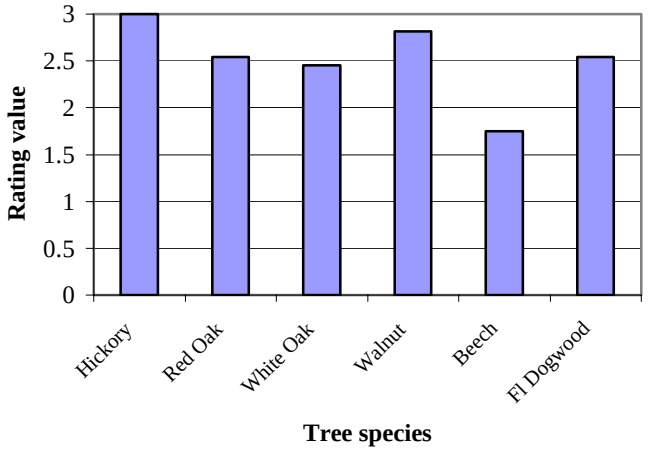


Central Region: The overall mast production index for central Kentucky (2.5) corresponded to a 47% (0.8) increase from last year (bottom left). The moderate to heavy rating for the hard mast species will provide increased food supply for forest wildlife species in this region. The moderate to high (2.6) rating for soft mast (bottom right) will help provide food during the winter in addition to abundant hard mast.

Central Kentucky overall mean mast production ratings, 1983-2003.

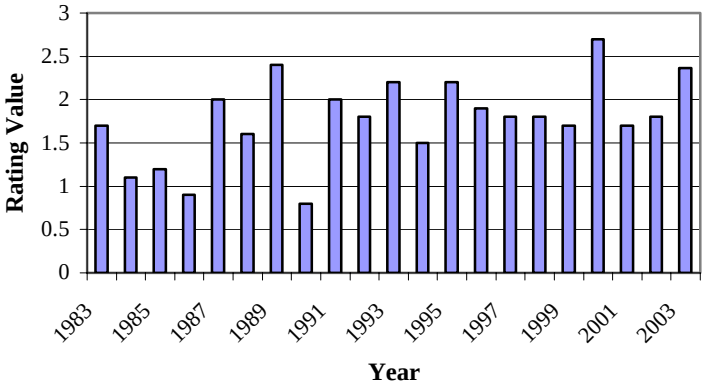


Central Kentucky mast ratings by tree species for 2003.

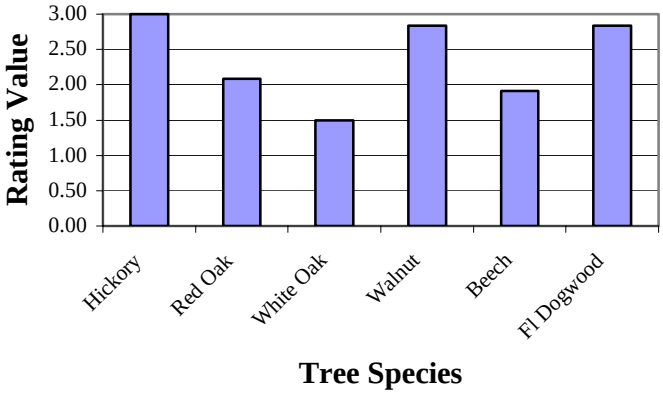


Eastern Region: The eastern region production rating (2.4) for 2002 (bottom left) is 33 % increase from last year's figure, which represents the smallest increase from 2002 compared to the other region's ratings. Increases were documented for all species, but hickory, walnut, and flowering dogwood were the heaviest producers. Moderate production was recorded for red and white oaks. (bottom right). The elevated mast production will likely lead to increasing forest wildlife populations in the eastern region.

Eastern Kentucky overall mean mast production ratings, 1983-2003.



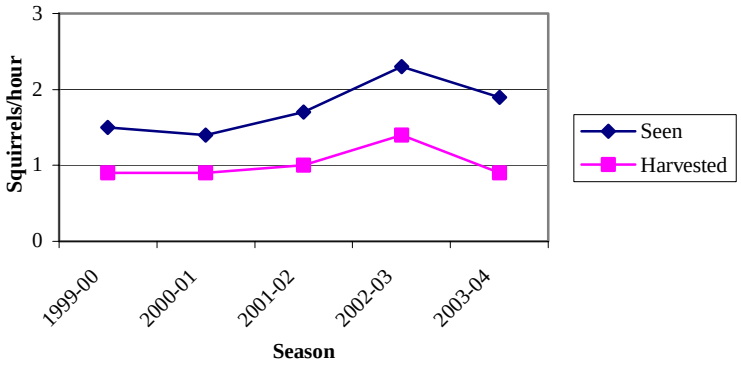
Eastern Kentucky mast ratings by tree species for 2003.



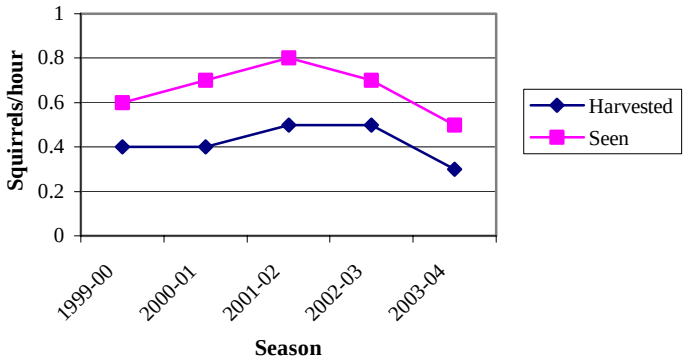
III. 2004-05 Fall Squirrel Hunt Forecast

Squirrel hunters proved me wrong last year. They observed over 2 squirrels per hour, and I expected less than 2 observed per hour. However, we did notice a decline in fox (bottom left graph) and gray squirrel (bottom right graph) populations as expected. Two consecutive good mast years and abundant soft mast last year may have maintained slightly higher than expected population levels. Looking at the results from the last five years of surveys, gray squirrels are showing population growth, whereas fox squirrel populations are showing stability or a slight decline. Hopefully, the fox squirrel population is staying around carrying capacity (which means as many fox squirrels as Kentucky's habitat can support, but we will need a few more years of data to be sure. Take a minute and page back to the graph called "Statewide overall mean mast production ratings, 1983-2003. Four of the last five mast years have been quite good. Consequently, the squirrel hunters have and will continue to experience the result of that food abundance.

Gray squirrels seen and harvested from Fall Squirrel Hunter Cooperator Survey, 1999-2004.



Fox squirrels seen and harvested from Fall Squirrel Hunter Cooperator Survey, 1999-2004.



The question remains - can we top last year's performance? You bet! I am excited about this fall's squirrel season. Last fall, KY had a tremendous mast crop. Actually, the best mast season in over 20 years according to our survey! I expect squirrel hunters to have the most productive year on record. Hunters should see well over 2 squirrels/hour (graph below). So, go out and enjoy the fruits of nature's bounty! Have a safe and enjoyable squirrel season and thanks for your support!

Figure 8. Mast rating compared to squirrels seen/hour from Kentucky, 1997-2003.

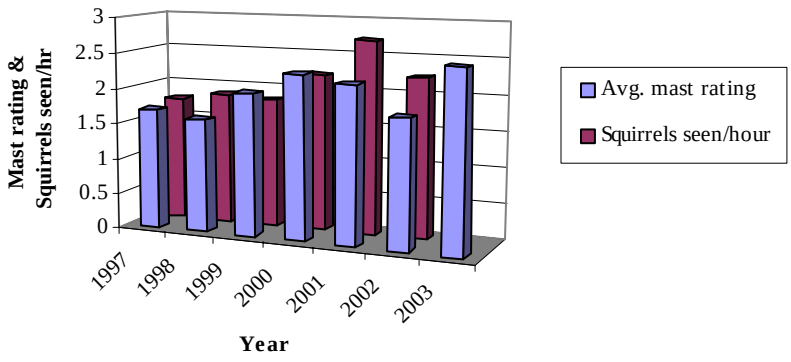


Figure 1. Distribution of Hunts from Squirrel Hunting Logs.